## SEQUENCE LISTING

## JC20 Rec'd PCT/PTO 2 6 SEP 2005

<110> Yamaoka, Hideaki Hoshijima, Mitsuhiro Kawase, Shido Kurosaka, Keisuke <120> Method for producing glucose dehydrogenase <130> TOYA114.007APC <150> PCT/JP2004/004074 <151> 2004-03-24 <150> JP 2003-82739 <151> 2003-03-25 <160> 15 <170> PatentIn Ver. 2.0 <210> 1 <211> 2467 <212> DNA <213> Burkhorderia cepacia <220> <221> CDS <222> (258)..(761) <220> <221> CDS <222> (764)..(2380) <220> <221> CDS <222> (2386)..(2466) <400> 1 aagctttctg tttgattgca cgcgattcta accgagcgtc tgtgaggcgg aacgcgacat 60 gcttcgtgtc gcacacgtgt cgcgccgacg acacaaaaat gcagcgaaat ggctgatcgt 120 tacgaatggc tgacacattg aatggactat aaaaccattg tccgttccgg aatgtgcgcg 180 tacatttcag gtccgcgccg atttttgaga aatatcaagc gtggttttcc cgaatccggt 240 gttcgagaga aggaaac atg cac aac gac aac act ccc cac tcg cgt cgc Met His Asn Asp Asn Thr Pro His Ser Arg Arg 5 338 cac ggc gac gca gcc gca tca ggc atc acg cgg cgt caa tgg ttg caa His Gly Asp Ala Ala Ala Ser Gly Ile Thr Arg Arg Gln Trp Leu Gln 20 ggc gcg ctg gcg ctg acc gca gcg ggc ctc acg ggt tcg ctg aca ttg 386 Gly Ala Leu Ala Leu Thr Ala Ala Gly Leu Thr Gly Ser Leu Thr Leu 35 30 434 cgg gcg ctt gca gac aac ccc ggc act gcg ccg ctc gat acg ttc atg Arg Ala Leu Ala Asp Asn Pro Gly Thr Ala Pro Leu Asp Thr Phe Met 50 acg ctt tee gaa teg etg ace gge aag aaa ggg ete age ege gtg ate Thr Leu Ser Glu Ser Leu Thr Gly Lys Lys Gly Leu Ser Arg Val Ile

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				Leu										acg Thr 90		530
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			gaa					acg						tat Tyr		626
ggc Gly	atc Ile 125	gtc Val	gac Asp	aac Asn	gtc Val	gtg Val 130	att Ile	acg Thr	tac Tyr	gag Glu	gaa Glu 135	gca Ala	tta Leu	atg Met	ttc Phe	674
														aac Asn		722
					gac Asp									atg q Met <i>H</i>		769
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gcg Ala	ggc Gly	gcg Ala	atc Ile 190	gtc Val	gcg Ala	cat His	cag Gln	ctc Leu 195	gcg Ala	atg Met	gcg Ala	ggc Gly	aag Lys 200	gcg Ala	gtg Val	865
atc Ile	ctg Leu	ctc Leu 205	gaa Glu	gcg Ala	ggc Gly	ccg Pro	cgc Arg 210	atg Met	ccg Pro	cgc Arg	tgg Trp	gaa Glu 215	atc Ile	gtc Val	gag Glu	913
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gtg Val	ggc Gly	ggc Gly	acg Thr 270	acg Thr	tgg Trp	cac His	tgg Trp	gcc Ala 275	gcg Ala	tcg Ser	gcg Ala	tgg Trp	cgc Arg 280	ttc Phe	att Iľe	1105
ccg Pro	aac Asn	gac Asp 285	ttc Phe	aag Lys	atg Met	aag Lys	agc Ser 290	gtg Val	tac Tyr	ggc Gly	gtc Val	ggc Gly 295	cgc Arg	gac Asp	tgg Trp	1153
ccg Pro	atc Ile 300	cag Gln	tac Tyr	gac Asp	gat Asp	ctc Leu 305	gag Glu	ccg Pro	tac Tyr	tat Tyr	cag Gln 310	cgc Arg	gcg Ala	gag Glu	gaa Glu	1201
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					tat Tyr											1777
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Asp	Gln 540	Glu	Thr	Gln	aag Lys	Ile 545	Phe	rys	Ala	Gly	Lys 550	Leu	Met	Lys	Pro	1921
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Phe	Asp	Cys	Phe	His 575	gaa Glu	Ile	Leu	Pro	Gln 580	Pro	Glu	Asn	Arg	Ile 585	Val	2017
Pro	Ser	Lys	Thr 590	Ala	acc Thr	Asp	Ala	Ile 595	Gly	Ile	Pro	Arg	Pro 600	Glu	Ile	2065
Thr	Tyr	Ala 605	Ile	Asp	gac Asp	Tyr	Val 610	Lys	Arg	Gly	Ala	Ala 615	His	Thr	Arg	2113
Glu	Val 620	Tyr	Ala	Thr	gcc Ala	Ala 625	Lys	Val	Leu	Gly	Gly 630	Thr	Asp	Val	Val	2161
ttc Phe 635	aac Asn	gac Asp	gaa Glu	ttc Phe	gcg Ala 640	ccg Pro	aac Asn	aat Asn	cac His	atc Ile 645	acg Thr	ggc Gly	tcg Ser	acg Thr	atc Ile 650	2209
atg Met	ggc Gly	gcc Ala	gat Asp	gcg Ala 655	cgc Arg	gac Asp	tcc Ser	gtc Val	gtc Val 660	gac Asp	aag Lys	gac Asp	tgc Cys	cgc Arg 665	acg Thr	2257
ttc Phe	gac Asp	cat His	ccg Pro	aac Asn	ctg Leu	ttc Phe	att Ile	tcg Ser	agc Ser	agc Ser	gcg Ala	acg Thr	atg Met	ccg Pro	acc Thr	2305

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gtc ggt acc gta aac gtg acg ctg acg atc gcc gcg ctc gcg ctg cgg
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atg tcg gac acg ctg aag aag gaa gtc tgacc gtg cgg aaa tct act ctc 2403
                                          Val Arg Lys Ser Thr Leu
Met Ser Asp Thr Leu Lys Lys Glu Val
                        705
                                                   710
                                                                   2451
act tto cto ato goo ggo tgo cto gog ttg cog ggo tto gog cgc gog
Thr Phe Leu Ile Ala Gly Cys Leu Ala Leu Pro Gly Phe Ala Arg Ala
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Thr Ala Ala Gly Leu Thr Gly Ser Leu Thr Leu Arg Ala Leu Ala Asp
                             40
Asn Pro Gly Thr Ala Pro Leu Asp Thr Phe Met Thr Leu Ser Glu Ser
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Leu Thr Gly Lys Lys Gly Leu Ser Arg Val Ile Gly Glu Arg Leu Leu
                                          75
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Gln Ala Leu Gln Lys Gly Ser Phe Lys Thr Ala Asp Ser Leu Pro Gln
Leu Ala Gly Ala Leu Ala Ser Gly Ser Leu Thr Pro Glu Gln Glu Ser
                                105
                                                     110
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Leu Ala Leu Thr Ile Leu Glu Ala Trp Tyr Leu Gly Ile Val Asp Asn
                            120
Val Val Ile Thr Tyr Glu Glu Ala Leu Met Phe Gly Val Val Ser Asp
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Thr Leu Val Ile Arg Ser Tyr Cys Pro Asn Lys Pro Gly Phe Trp Ala
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Ala Val Ile Leu Leu Glu Ala Gly Pro Arg Met Pro Arg Trp Glu Ile
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Val Glu Arg Phe Arg Asn Gln Pro Asp Lys Met Asp Phe Met Ala Pro
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Tyr Pro Ser Ser Pro Trp Ala Pro His Pro Glu Tyr Gly Pro Pro Asn

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Asp Tyr Leu Ile Leu Lys Gly Glu His Lys Phe Asn Ser Gln Tyr Ile
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Arg Ala Val Gly Gly Thr Thr Trp His Trp Ala Ala Ser Ala Trp Arg
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Phe Ile Pro Asn Asp Phe Lys Met Lys Ser Val Tyr Gly Val Gly Arg
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Asp Trp Pro Ile Gln Tyr Asp Asp Leu Glu Pro Tyr Tyr Gln Arg Ala
                       135
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Glu Glu Glu Leu Gly Val Trp Gly Pro Gly Pro Glu Glu Asp Leu Tyr
                   150
                                       155
Ser Pro Arg Lys Gln Pro Tyr Pro Met Pro Pro Leu Pro Leu Ser Phe
               165
                                   170 ·
Asn Glu Gln Thr Ile Lys Thr Ala Leu Asn Asn Tyr Asp Pro Lys Phe
                                185
His Val Val Thr Glu Pro Val Ala Arg Asn Ser Arg Pro Tyr Asp Gly
                            200
Arg Pro Thr Cys Cys Gly Asn Asn Cys Met Pro Ile Cys Pro Ile
                        215
                                            220
Gly Ala Met Tyr Asn Gly Ile Val His Val Glu Lys Ala Glu Arg Ala
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Gly Ala Lys Leu Ile Glu Asn Ala Val Val Tyr Lys Leu Glu Thr Gly
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Pro Asp Lys Arg Ile Val Ala Ala Leu Tyr Lys Asp Lys Thr Gly Ala
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Glu His Arg Val Glu Gly Lys Tyr Phe Val Leu Ala Ala Asn Gly Ile
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Glu Thr Pro Lys Ile Leu Leu Met Ser Ala Asn Arg Asp Phe Pro Asn
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Gly Val Ala Asn Ser Ser Asp Met Val Gly Arg Asn Leu Met Asp His
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Pro Gly Thr Gly Val Ser Phe Tyr Ala Ser Glu Lys Leu Trp Pro Gly
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Arg Gly Pro Gln Glu Met Thr Ser Leu Ile Gly Phe Arg Asp Gly Pro
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           340
Phe Arg Ala Thr Glu Ala Ala Lys Lys Ile His Leu Ser Asn Leu Ser
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Arg Ile Asp Gln Glu Thr Gln Lys Ile Phe Lys Ala Gly Lys Leu Met
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                                            380
Lys Pro Asp Glu Leu Asp Ala Gln Ile Arg Asp Arg Ser Ala Arg Tyr
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Val Gln Phe Asp Cys Phe His Glu Ile Leu Pro Gln Pro Glu Asn Arg
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Ile Val Pro Ser Lys Thr Ala Thr Asp Ala Ile Gly Ile Pro Arg Pro
                                425
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Glu Ile Thr Tyr Ala Ile Asp Asp Tyr Val Lys Arg Gly Ala Ala His
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Thr Arg Glu Val Tyr Ala Thr Ala Ala Lys Val Leu Gly Gly Thr Asp
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Val Val Phe Asn Asp Glu Phe Ala Pro Asn Asn His Ile Thr Gly Ser
                   470
                                       475
Thr Ile Met Gly Ala Asp Ala Arg Asp Ser Val Val Asp Lys Asp Cys
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Arg Thr Phe Asp His Pro Asn Leu Phe Ile Ser Ser Ser Ala Thr Met
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Pro Thr Val Gly Thr Val Asn Val Thr Leu Thr Ile Ala Ala Leu Ala
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Xaa Xaa Xaa Asp Cys Xaa Ala Cys His
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<211> 27
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<210> 9
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gtg cgg aaa tot act otc act tto otc atc gcc ggc tgc otc gcg ttg
Val Arg Lys Ser Thr Leu Thr Phe Leu Ile Ala Gly Cys Leu Ala Leu
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ccq qqc ttc qcg cqc qcg gcc gat gcg gcc gat ccg gcg ctg gtc aag
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Pro Gly Phe Ala Arq Ala Ala Asp Ala Ala Asp Pro Ala Leu Val Lys
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cgc ggc gaa tac ctc gcg acc gcc atg ccg gta ccg atg ctc ggc aag
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Arg Gly Glu Tyr Leu Ala Thr Ala Met Pro Val Pro Met Leu Gly Lys
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                                                                   312
atc tac acg agc aac atc acg ccc gat ccc gat acg ggc gac tgc atg
Ile Tyr Thr Ser Asn Ile Thr Pro Asp Pro Asp Thr Gly Asp Cys Met
                                                                   360
gee tge cae ace gtg aag gge gge aag eeg tae geg gge gge ett gge
Ala Cys His Thr Val Lys Gly Gly Lys Pro Tyr Ala Gly Gly Leu Gly
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                                         75
ggc atc ggc aaa tgg acg ttc gag gac ttc gag cgc gcg gtg cgg cac
                                                                   408
Gly Ile Gly Lys Trp Thr Phe Glu Asp Phe Glu Arg Ala Val Arg His
                 85
                                     90
ggc gtg tcg aag aac ggc gac aac ctg tat ccg gcg atg ccg tac gtg
                                                                   456
Gly Val Ser Lys Asn Gly Asp Asn Leu Tyr Pro Ala Met Pro Tyr Val
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tcg tac gcg aag atc aag gac gac gta cgc gcg ctg tac gcc tac
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Ser Tyr Ala Lys Ile Lys Asp Asp Asp Val Arg Ala Leu Tyr Ala Tyr
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                                                                   552
ttc atg cac ggc gtc gag ccg gtc aag cag gcg ccg ccg aag aac gag
Phe Met His Gly Val Glu Pro Val Lys Gln Ala Pro Pro Lys Asn Glu
                        135
                                                                   600
atc cca qcq ctg cta agc atg cgc tgg ccg ctg aag atc tgg aac tgg
Ile Pro Ala Leu Leu Ser Met Arg Trp Pro Leu Lys Ile Trp Asn Trp
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                    150
ctg ttc ctg aag gac ggc ccg tac cag ccg aag ccg tcg cag agc gcc
                                                                   648
Leu Phe Leu Lys Asp Gly Pro Tyr Gln Pro Lys Pro Ser Gln Ser Ala
                                    170
                165
gaa tgg aat cgc ggc gcg tat ctg gtg cag ggt ctc gcg cac tgc agc
                                                                   696
Glu Trp Asn Arg Gly Ala Tyr Leu Val Gln Gly Leu Ala His Cys Ser
                                185
                                                                   744
acq tgc cac acg cgc cgc ggc atc gcg atg cag gag aag tcg ctc gac
Thr Cys His Thr Pro Arg Gly Ile Ala Met Gln Glu Lys Ser Leu Asp
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gaa acc ggc ggc agc ttc ctc gcg ggg tcg gtg ctc gcc ggc tgg gac
Glu Thr Gly Gly Ser Phe Leu Ala Gly Ser Val Leu Ala Gly Trp Asp
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ggc tac aac atc acg tcg gac ccg aat gcg ggg atc ggc agc tgg acg
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Gly Tyr Asn Ile Thr Ser Asp Pro Asn Ala Gly Ile Gly Ser Trp Thr
                                        235
                    230
                                                                   888
cag cag cag etc gtg cag tat ttg ege ace gge age gtg eeg gge gte
Gln Gln Gln Leu Val Gln Tyr Leu Arg Thr Gly Ser Val Pro Gly Val
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                245
                                                                   936
gcg cag gcg gcc ggg ccg atg gcc gag gcg gtc gag cac agc ttc tcg
Ala Gln Ala Ala Gly Pro Met Ala Glu Ala Val Glu His Ser Phe Ser
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                                265
                                                                   984
aag atg acc gaa gcg gac atc ggt gcg atc gcc acg tac gtc cgc acg
Lys Met Thr Glu Ala Asp Ile Gly Ala Ile Ala Thr Tyr Val Arg Thr
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Val Pro Ala Val Ala Asp Ser Asn Ala Lys Gln Pro Arg Ser Ser Trp
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                        295
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Gly Lys Pro Ala Glu Asp Gly Leu Lys Leu Arg Gly Val Ala Leu Ala
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Ser Ser Gly Ile Asp Pro Ala Arg Leu Tyr Leu Gly Asn Cys Ala Thr
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tgc cac cag atg cag ggc aag ggc acg ccg gac ggc tat tac ccg tcg
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Cys His Gln Met Gln Gly Lys Gly Thr Pro Asp Gly Tyr Tyr Pro Ser
                                345
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ctg ttc cac aac tcc acc gtc ggc gcg tcg aat ccg tcg aac ctc gtg
Leu Phe His Asn Ser Thr Val Gly Ala Ser Asn Pro Ser Asn Leu Val
                            360
cag gtg atc ctg aac ggc gtg cag cgc aag atc ggc agc gag gat atc
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Gln Val Ile Leu Asn Gly Val Gln Arg Lys Ile Gly Ser Glu Asp Ile
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ggg atg ccc gct ttc cgc tac gat ctg aac gac gcg cag atc gcc gcg
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Gly Met Pro Ala Phe Arg Tyr Asp Leu Asn Asp Ala Gln Ile Ala Ala
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ctq acq aac tac gtg acc gcg cag ttc ggc aat ccg gcg gcg aag gtg
Leu Thr Asn Tyr Val Thr Ala Gln Phe Gly Asn Pro Ala Ala Lys Val
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                405
acg gag cag gac gtc gcg aag ctg cgc tga catagtcggg cgcgccgaca
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Arg Gly Glu Tyr Leu Ala Thr Ala Met Pro Val Pro Met Leu Gly Lys
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Ile Tyr Thr Ser Asn Ile Thr Pro Asp Pro Asp Thr Gly Asp Cys Met
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Gly Val Ser Lys Asn Gly Asp Asn Leu Tyr Pro Ala Met Pro Tyr Val
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Ser Tyr Ala Lys Ile Lys Asp Asp Asp Val Arg Ala Leu Tyr Ala Tyr
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Phe Met His Gly Val Glu Pro Val Lys Gln Ala Pro Pro Lys Asn Glu
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Ile Pro Ala Leu Leu Ser Met Arg Trp Pro Leu Lys Ile Trp Asn Trp
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Leu Phe Leu Lys Asp Gly Pro Tyr Gln Pro Lys Pro Ser Gln Ser Ala
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Glu Trp Asn Arg Gly Ala Tyr Leu Val Gln Gly Leu Ala His Cys Ser
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                                185
Thr Cys His Thr Pro Arg Gly Ile Ala Met Gln Glu Lys Ser Leu Asp
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Glu Thr Gly Gly Ser Phe Leu Ala Gly Ser Val Leu Ala Gly Trp Asp
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                                            220
Gly Tyr Asn Ile Thr Ser Asp Pro Asn Ala Gly Ile Gly Ser Trp Thr
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                                        235
Gln Gln Leu Val Gln Tyr Leu Arg Thr Gly Ser Val Pro Gly Val
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                245
Ala Gln Ala Ala Gly Pro Met Ala Glu Ala Val Glu His Ser Phe Ser
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Lys Met Thr Glu Ala Asp Ile Gly Ala Ile Ala Thr Tyr Val Arg Thr
                                                285
                            280
Val Pro Ala Val Ala Asp Ser Asn Ala Lys Gln Pro Arg Ser Ser Trp
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Gly Lys Pro Ala Glu Asp Gly Leu Lys Leu Arg Gly Val Ala Leu Ala
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Ser Ser Gly Ile Asp Pro Ala Arg Leu Tyr Leu Gly Asn Cys Ala Thr
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                325
Cys His Gln Met Gln Gly Lys Gly Thr Pro Asp Gly Tyr Tyr Pro Ser
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            340
Leu Phe His Asn Ser Thr Val Gly Ala Ser Asn Pro Ser Asn Leu Val
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Gln Val Ile Leu Asn Gly Val Gln Arg Lys Ile Gly Ser Glu Asp Ile
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Gly Met Pro Ala Phe Arg Tyr Asp Leu Asn Asp Ala Gln Ile Ala Ala
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Leu Thr Asn Tyr Val Thr Ala Gln Phe Gly Asn Pro Ala Ala Lys Val
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<223> Description of Artificial Sequence: primer
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<210> 14
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